Guinness Atkinson
Global Energy Fund (GAGEX)
July 2021

REPORT HIGHLIGHTS

OIL

WTI/Brent up strongly on tight market

Brent and WTI both up over the quarter. WTI closed at $74/bl, while Brent to $75/bl. Global oil and refined product inventories continue to tighten, thanks to a demand recovery which is running ahead of the oil being fed back into the market by OPEC (Organization of the Petroleum Exporting Countries). OPEC+ met in early July but failed to reach agreement with United Arab Emirates (UAE) on extending quota terms from April 2022 to December 2022, adding short-term volatility.

NATURAL GAS

US, European and Asian gas prices weaker

Surging industrial activity as many economies recover from COVID, a cold start to the summer in Europe, drought in Brazil curbing hydro output, then extreme North American heat in June, have acted to create unusually tight gas markets. The European gas price (using UK National Balancing Point) rose to $12.0/mcf (mcf = one thousand cubic feet); Japanese LNG prices to $13.0/mcf; and the US spot price (Henry Hub) increased to $3.6/mcf.

EQUITIES

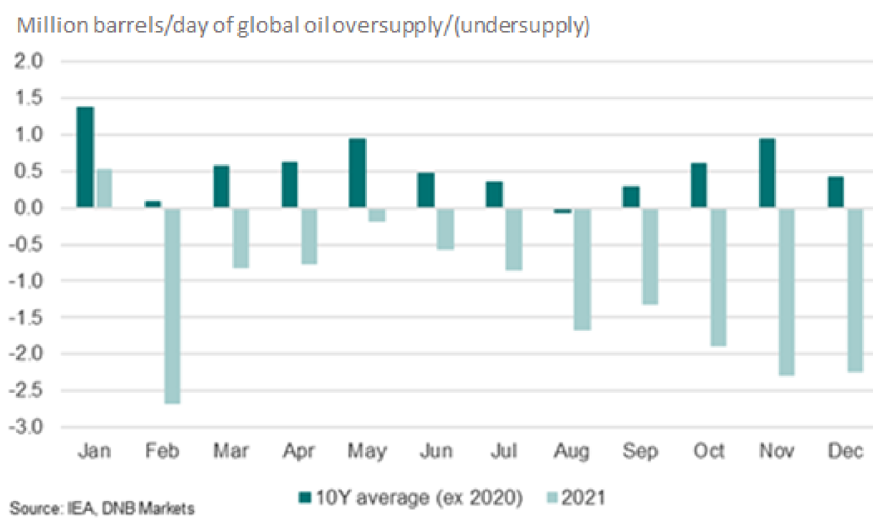
Energy outperforms the broad market over the second quarter

The MSCI World Energy Index (net return) rose by 8.7% in the second quarter, outperforming the S&P 500 Index which rose by 8.5% over the period (all in US dollar terms).

CHART OF THE QUARTER – Sharp drop in US drilling rig count already in evidence

The oil market has remained undersupplied since February 2021, causing global oil and refined product inventories to tighten. With the demand recovery expected over the rest if the year, even the additional barrels expected to be added by OPEC+ (2 million barrels/day (m b/day) from July to Dec) are not sufficient to create balance. The focus therefore remains on OPEC to overcome the current impasse and add the barrels that are needed to avoid an overheated market.

Oil market looks undersupplied even with expected OPEC adds (million b/day)



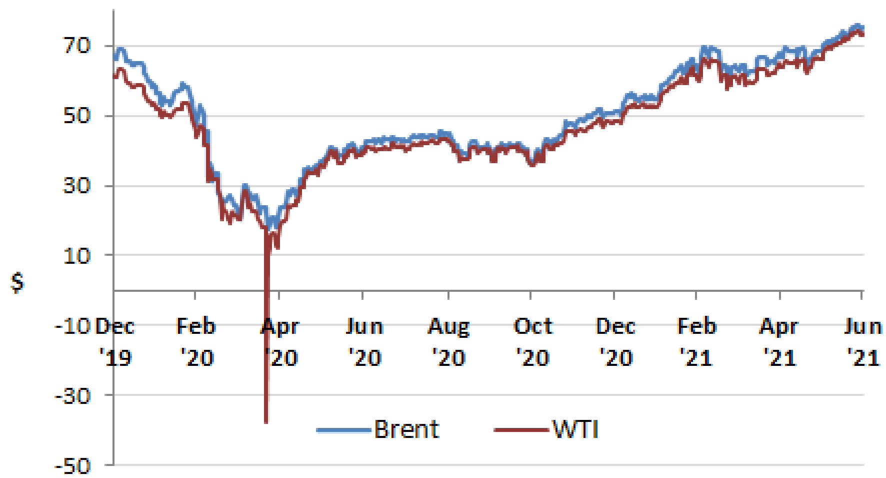
Source: DNB; Guinness Atkinson Asset Management

Second Quarter 2021 in Review
Manager's Comments
Performance: Guinness Atkinson Global Energy Fund
Portfolio: Guinness Atkinson Global Energy Fund

1. **Second quarter 2021 in review**

i) Oil market

Figure 1: Oil price (WTI and Brent $/barrel) 18 months December 31 2019 to June 30 2021



Source: Bloomberg LP

The West Texas Intermediate (WTI) oil price traded up over the quarter, reaching a high of $74.3/barrel (bl) on June 26. The price then slipped slightly to close June at $73.4/bl. WTI has averaged $61.9/bl so far in 2021, having averaged $40/bl in 2020, $58/bl in 2019 and $65/bl in 2018.

Brent oil traded in a similar shape, closing the quarter close to its highs at $75.1/bl. Brent has averaged $64.6/bl so far in 2021, having averaged $42/bl in 2020, $64/bl in 2019 and $72/bl in 2018. The gap between the WTI and Brent benchmark oil prices closed slightly over the month, ending June at around $2/bl, versus just below $3/bl on average in 2020.

Factors which strengthened WTI and Brent oil prices in the quarter:

- **Recovery in oil demand**
  Global oil demand in the first half of 2021 is estimated to have risen by around 6m barrels/day (vs 1H 2020), as post-COVID recovery gained momentum. After expanded lockdowns in the first quarter, accelerated vaccination programs contributed to mobility improving in US and Europe. Freight and industrial activity also surged. In June, the International Energy Agency (IEA) published their first estimate for oil demand in 2022, with a 3m b/day rise expected. This would put global oil demand in 2022 on course for 99.5m barrels/day (b/day), around the same level as demand in 2019.

- **Capital discipline from non-OPEC oil producers**

In spite of the sharp rise in spot oil prices so far this year, the supply response from non-OPEC countries (outside the OPEC+ group) continues to be muted. This includes the US shale industry, where the rise in rigs actively drilling for oil has been far shallower than in the previous upcycle of 2016. In a recent interview, the CEO of Pioneer Natural Resources, one of the largest shale producers, said "I'm still confident the producers will not respond" to the run-up in prices. Consistent with the comments from Pioneer, we expect public sector shale oil companies to continue to prioritize free cashflow over growth, the former being potentially rewarded by the stock market this year.

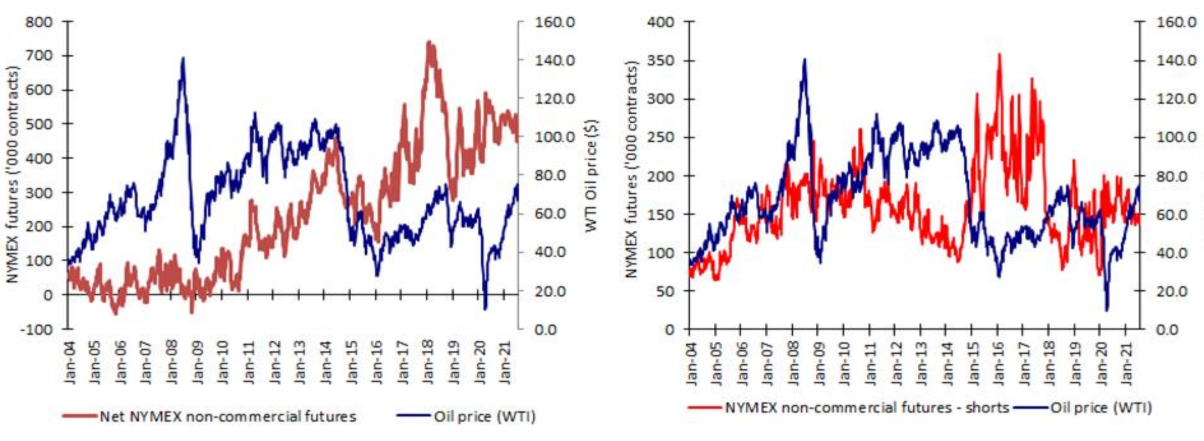
Factors which weakened WTI and Brent oil prices in the quarter:

- **Rising expectations around the return of Iranian exports**
  Negotiations between Iran and the West regarding the country's nuclear program continued in June. Assuming the talks are successful and using the previous ramp-up of Iranian production in 2016 as an analogy, we would expect to see Iranian supply rise to around 3.5m b/day (implying a 0.7m b/day increase) towards the end of 2021. If this occurs, we expect it to be absorbed reasonably easily into OPEC+'s plans.

Speculative and investment flows

The New York Mercantile Exchange (NYMEX) net non-commercial crude oil futures open position was 525,000 contracts long at the end of June versus 476,000 contracts long at the end of May. The net position peaked in February 2018 at 739,000 contracts long. Typically, there is a positive correlation between the movement in net position and movement in the oil price. The gross short position decreased to 144,000 contracts at the end of June versus 150,000 at the end of the previous month.

Figure 2: NYMEX Non-commercial net and short futures contracts: WTI January 2004 – July 2021



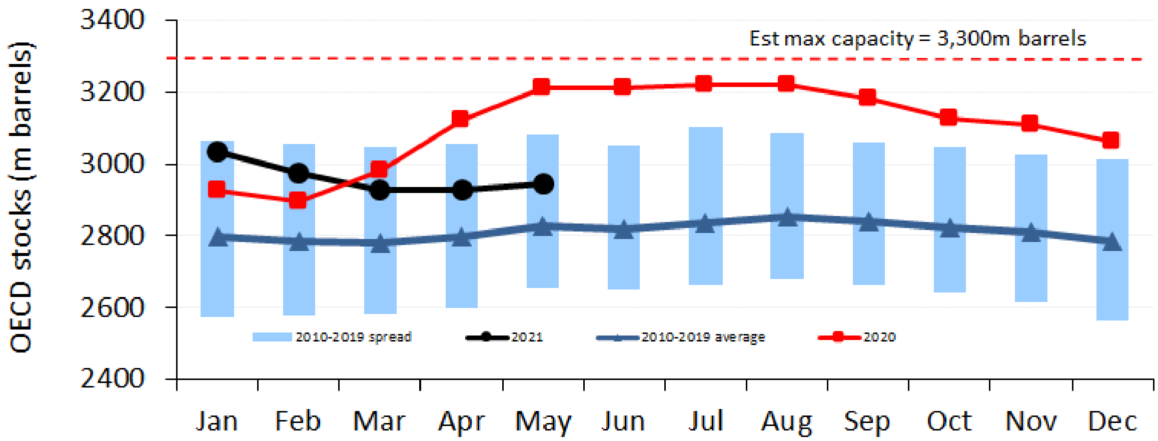
Source: Bloomberg LP/NYMEX/ICE (2021)

OECD stocks

OECD total product and crude inventories at the end of May (latest data point) were estimated by the IEA to be 2,944m barrels, up by 18 barrels versus the level reported for April. This compares to a 10-year average increase for May of 27m barrels, implying that the OECD market was undersupplied. The significant oversupply situation in

2020 pushed OECD inventory levels close to maximum capacity in August (about 3.3bn barrels), with a tightening thereafter.

Figure 3: OECD total product and crude inventories, monthly, 2004 to 2021



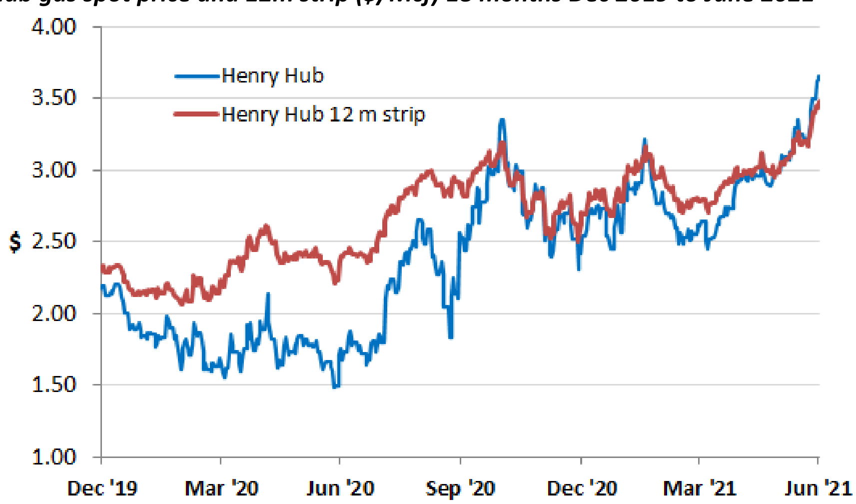
Source: IEA Oil Market Reports (June 2021 and older)

ii) Natural gas market

The US natural gas price (Henry Hub front month) opened June at $2.99/mcf (1,000 cubic feet) and moved up strongly over the month, closing at $3.65/mcf. The spot gas price has averaged $2.84/mcf so far in 2021, having averaged $2.13/mcf in 2020, $2.53/mcf in 2019 and $3.07 in 2018.

The 12-month gas strip price (a simple average of settlement prices for the next 12 months' futures prices) also rose over the month, opening at $2.99/mcf and closing at $3.48/mcf. The strip price averaged $2.54 in 2020 having averaged $2.60 in 2019, $2.90 in 2018 and $3.12 in 2017.

Figure 4: Henry Hub gas spot price and 12m strip ($/Mcf) 18 months Dec 2019 to June 2021



Source: Bloomberg LP

Factors which strengthened the US gas price in the quarter included:

- **Lower than normal international gas inventories and stronger international demand**

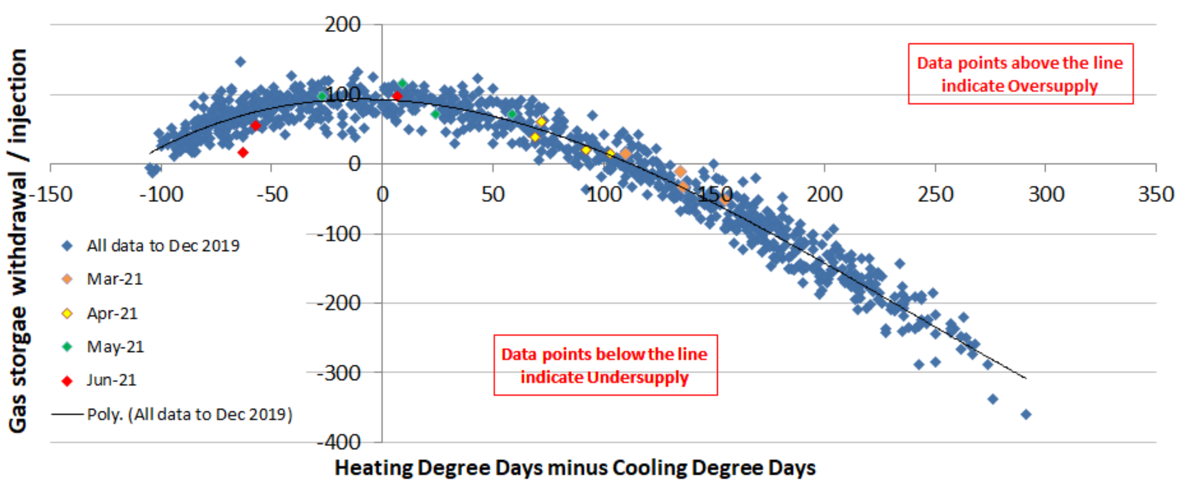
The outlook for international natural gas markets (Asia and Europe) in the remainder of summer 2021 continues to strengthen as European natural gas inventories are currently running 25% below the 5yr average (and around 50% below the 2020 levels), while Asian demand continues to rebound overall. In addition, exports of US natural gas to Mexico are surprisingly strong.

Factors which weakened the US gas price in the quarter included:

- **US onshore supply rising**

  The latest US natural gas production data published by the EIA (for April) indicates that onshore supply of gas rose by 1.2 Bcf/day to 101.1 Bcf/day. This level of production is 0.6 Bcf/day higher than at the start of the year, but around 3 Bcf/day lower than peak production in Dec 2019. Despite the increase in supply so far in 2021, it has been more than outweighed by the rise in demand, coming from improving economic activity and rising LNG exports.

Figure 5: Weather adjusted US natural gas inventory injections and withdrawals

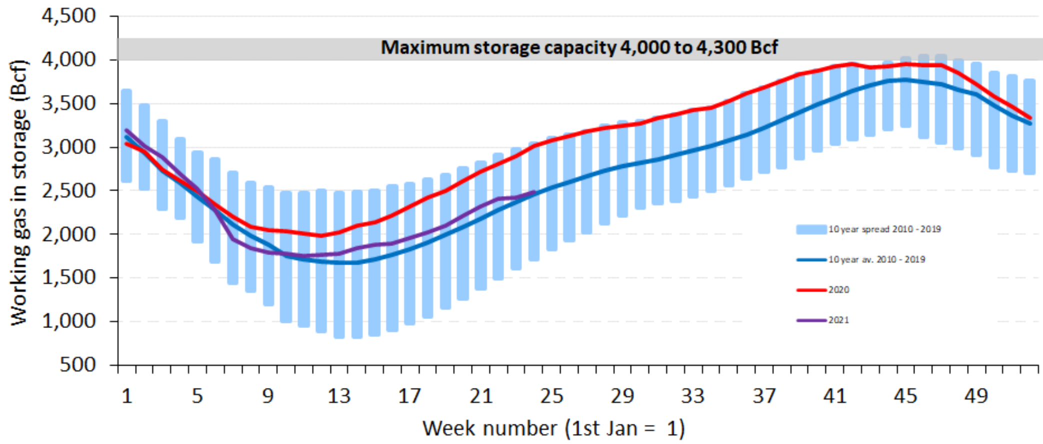


Source: Bloomberg LP; Guinness Atkinson Asset Management

Natural gas inventories

Swings in the balance for US natural gas should, in theory, show up in movements in gas storage data. Natural gas inventories at the end of June were reported by the US Energy Information Administration (EIA) to be 2.5 trillion cubic feet (Tcf). Current gas in storage is in line with the 10-year average.

Figure 6: Deviation from 5yr gas storage norm



Source: Bloomberg; EIA (June 2021)

1. MANAGER'S COMMENTS

Review of 1H 2021

The first half of 2021 has seen a sustained improvement in the balance of the oil market. OPEC have kept their discipline, maintaining their production quotas at levels which have allowed global oil inventories to tighten. The recovery in global oil demand has been uneven, with new European lockdowns and rampant cases of COVID in India coming as setbacks. Overall, though, rising mobility and a surge in freight and industrial activity have helped to improve oil consumption significantly. Oil prices have responded positively, with the Brent spot price up by around 50% since the start of the year, creating a positive backdrop for oil & gas equities.

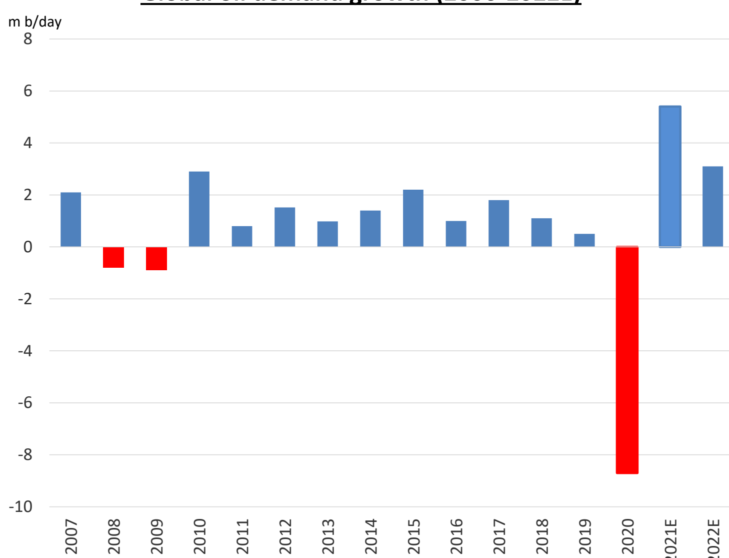
Here, we explore the key developments in oil and gas markets over the period, the impact on energy equities and the fund, and consider the outlook.

Oil demand: bouncing back

Global oil demand in the first half of 2021 is estimated to have risen by around 6m b/day (vs 1H 2020), as post-COVID recovery gained momentum. After expanded lockdowns in the first quarter, accelerated vaccination programs contributed to mobility improving in US and Europe. Freight and industrial activity surged. The recovery in activity in developed markets is faster than many were assuming earlier this year, helping offset a slower recovery in parts of South Asia and Latin America. The area of oil demand that continues to lag is aviation. Globally, commercial flights per day remained around 30% lower than in 2019. Even in this sector, however, there are signs of improvement. The recovery in US jet demand is accelerating, with jet fuel demand for domestic flights now around 15% below 2019 levels, having started the year 35% below.

Building an accurate view of annual global oil demand for 2021 depends on the path of the COVID recovery, and that remains uncertain. The IEA's best estimate is for a recovery in demand in 2021 of around 5.5m b/day, followed by a 3m b/day rise in 2022. This would put global oil demand in 2022 on course for 99.5m b/day, around the same level as demand in 2019.

Global oil demand growth (2006-2022E)



Sources: IEA; Guinness Atkinson Asset Management

The underlying composition of the IEA's demand forecast for 2022 is interesting to note. While total demand is essentially unchanged versus 2019, OECD demand is expected still to be around 1.6m b/day lower, while non-OECD demand is forecast to be 1.4m b/day higher than 2019. It is a reminder, then, of the unrelenting pressure on oil consumption coming from places like China, which has grown its demand as though COVID had never occurred.

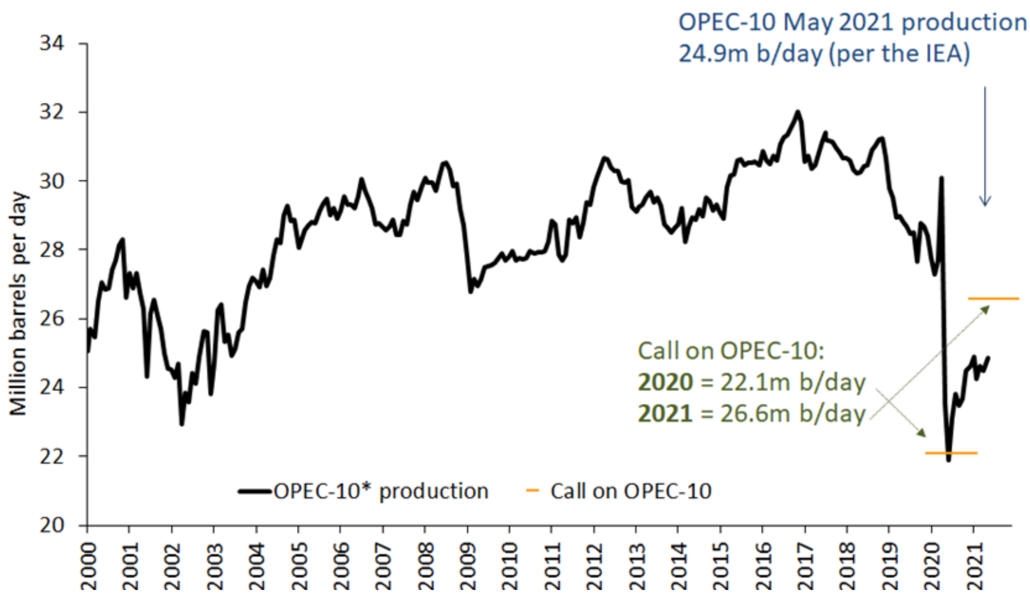
OPEC supply: in control of the oil market

OPEC, led by Saudi, have been focused this year on micromanaging the oil market as demand improves. Their approach has also been a cautious one, returning oil to the market but in volumes that have kept the overall balance tight. Outside OPEC+, there has been no significant supply response, leaving the direction of the oil price in OPEC's hands.

OPEC+ started the year with quotas 7.8m b/day below 'base line'. Saudi reacted to the softness in European demand in the first quarter with the unilateral decision to remove a further 1m b/day from the market. Since then, OPEC+ has been increasing its supply in accordance with the 2020 quota agreement, reducing the quota cut by

June to 5.8m b/day. The group has been disciplined, maintaining at least 100% compliance with quotas every month so far in 2021.

OPEC-10 production (m b/day)



Source: IEA; Bloomberg; Guinness Atkinson Asset Management

With the possibility of an overheating oil market, the Saudi energy minister responded in June by stating, "I'll believe it when I see it.", indicating Saudi's continued conservative output policy. However, with Brent oil prices over $70/bl, tensions within the OPEC+ group have risen, with Russia content to see a lower price than Saudi and UAE scrapping for greater market share.

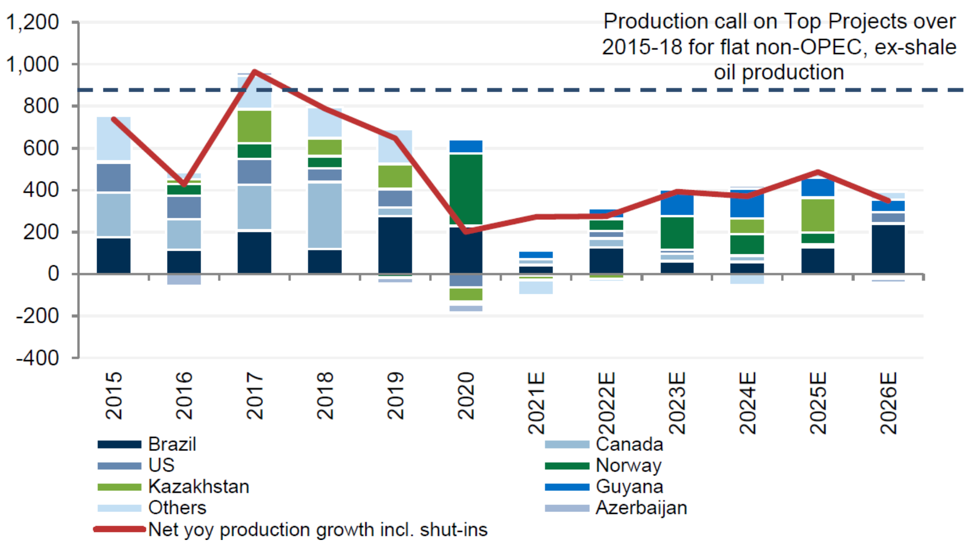
One other area that OPEC will be keeping a close eye on is Iran. A return to the JCPOA agreement remains a foreign policy priority for President Biden's administration, which would result in a lifting of sanctions on Iranian crude exports put in place by President Trump. Ultimately, if greater Iranian exports do return later in the year (base case is around 0.7m b/day), we expect OPEC+ to accommodate the ramp up, as it would be against the group's interest to do otherwise.

Non-OPEC supply: anaemic spending; capital discipline being rewarded

While oil prices have recovered post COVID, the effects of the pandemic will be felt in the industry for a number of years. Upstream oil and gas capital expenditure fell in 2020 by 28% to US$225bn, the lowest level since 2005, as sharply lower oil prices reduced operating cash flow for oil and gas companies. This is the third reduction in excess of 25% that the industry has suffered in the last six years, bringing the 2020 spend a level that is 60% lower than the 2014 peak of $553bn. This year, upstream investment is expected to recover only marginally, rising by around 7% to $240bn.

The reduced investment in 2020/2021 further compounds an already weakened outlook for oil project investment, increasing the risk that new large-scale oil projects will not be sufficient to satisfy demand. 2021 is shaping up to be the lowest year for large project additions since the early 2000s. And on average, the production outlook (ex US shale and Russia) in 2021-2026 is around 0.5m b/day lower per year than it was in 2017-2019. This anticipated slow down reflects the lower oil and gas investment seen between 2016 and 2021 and is unlikely to change even if oil prices recover from here.

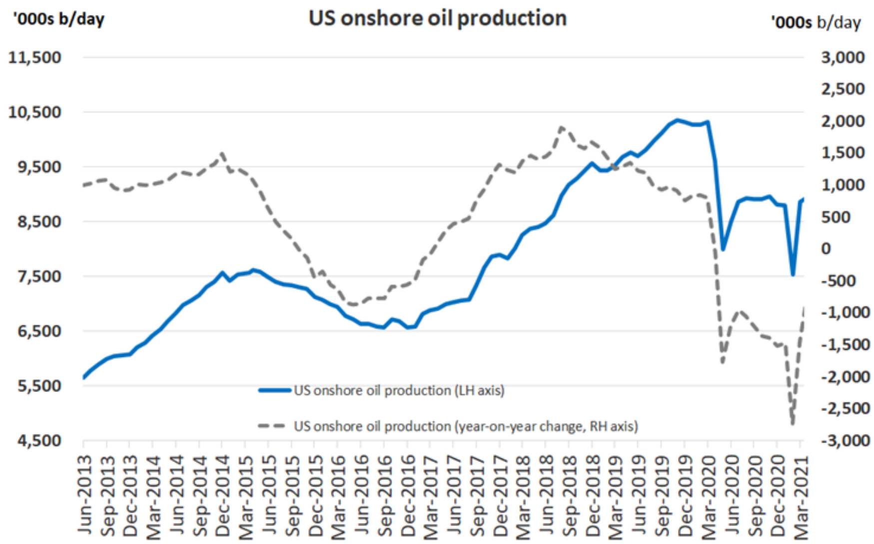
Non-OPEC (ex US onshore and Russia) new large project production additions



Source: Goldman Sachs

For US shale oil, production has recovered from the lows of May/June 2020, but still sits around 1.4m b/day below the November 2019 peak of 10.4m b/day.

The last rebound in production, post the 2016 trough, was achieved thanks to equity and debt markets that kept on giving, combined with a producer mentality that favored growth over returns. Even before the collapse in oil prices last March, producers had started to show better capital discipline that was slowing supply growth. And so far this year, shale oil producers have been adding back drilling rigs at a lower pace than in the 2016 cycle, with equity markets rewarding companies that are prioritizing free cashflow and dividends over the recycling of cashflow into additional drilling.



Source: EIA; Guinness Atkinson Asset Management

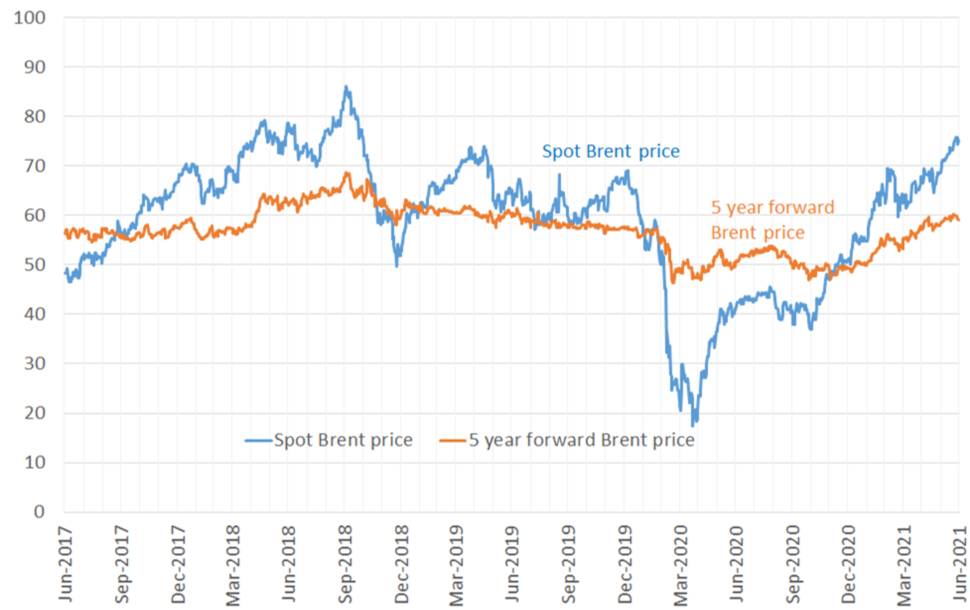
Overall, non-OPEC supply is expected to recover by 0.8m b/day in 2021, having fallen by 2.5m b/day in 2020. By comparison, given that demand will rebound by over 5m b/day this year, it has fallen to OPEC to control market balance.

Oil prices

Thanks to the events described above, spot oil prices rose strongly during the first half of 2021. Brent started the year at $51/bl, moved up to nearly $70/bl in early March, before falling to the low $60s/bl. The price then resumed its upwards trajectory, reaching $75/bl by the end of June. Brent spot has averaged $65/bl so far this year, versus $42/bl last year. The five-year forward Brent price opened the year at $49/bl and rose steadily by the end of June to $59/bl.

WTI oil prices in the US followed a similar path, with WTI reaching $73/bl by the end of June. Five-year forward WTI was up from $45/bl to $54/bl.

Brent spot vs five year forward oil prices (2017-21)

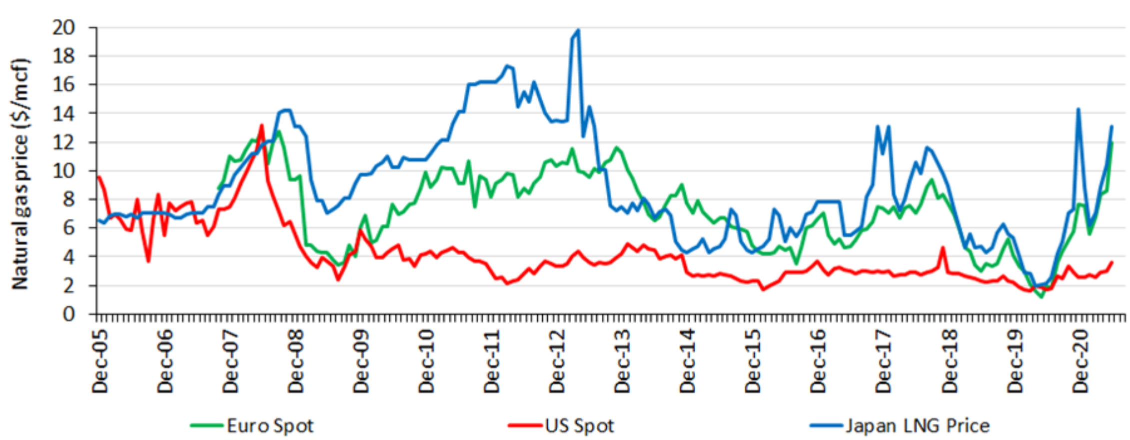


Source: Bloomberg

Natural gas

For natural gas, a number of factors have come together across to globe to drive prices materially higher. Surging industrial activity as many economies recover from COVID, a cold start to the summer in Europe, drought in Brazil curbing hydro output, then extreme North American heat in June, have acted to create unusually tight markets. The European gas price (using UK NBP) rose from $7.7/mcf to $12.0/mcf; Japanese LNG prices rose from $7.3/mcf to $13.0/mcf; and the US spot price (Henry Hub) rose from $2.5/mcf to $3.6/mcf. In the US, exports of LNG have reached new highs of around 11Bcf/day, as the arbitrage between US and European/Asian prices has been wide enough to incentivise export operations running at full capacity.

Global natural gas prices (US$/mcf)



Source: Bloomberg; Guinness Atkinson Asset Management

Energy equities

Given the strength in oil and gas prices, the first half of 2021 has been positive period for energy equities. The sector (MSCI World Energy Index net return in USD) finished +32.4%, well ahead of the broad market (MSCI World +13.1%). The Guinness Atkinson Global Energy Fund produced a total return of +35.45%, outperforming its index by 3.2%.

On a stock-by stock-basis in the fund, our three US shale oil biased E&P companies (Devon Energy Corp +89%; EOG Resources +69%; Pioneer Natural Resources +44%) were strong performers, enjoying a high degree of operational leverage to rising oil prices. US integrateds (Exxon +57%; Chevron +27%) and our US refining holding (Valero +42%), also outperformed, benefitting from growing optimism around the US refining environment. Another subsector within the fund that outperformed over the first half of 2021 was Canadian integrateds (Imperial Oil +63%; Canadian Natural Resources +55%; Suncor +45%), with high cost oil sands operations enjoying oil price leverage and growing free cashflow profiles.

Natural gas producers also did well, thanks to strength in the underlying commodity. Petrochina, which controls the majority of China's domestic natural gas reserves, was the stand-out larger cap gas name in the fund, up 62% since the start of the year.

Weaker subsectors in the fund included European majors (Galp +5%; Total +9%; Royal Dutch Shell +15%), the common theme here being weaker prospects for downstream earnings as COVID-related lockdowns stepped up again across the continent, dampening product demand. We were reasonably pleased with the oil service exposure in the fund (Schlumberger +48%; Helix +36%), though much of the wider energy services sector remained weighed down by excess capacity concerns.

Performance data quoted represent past performance and does not guarantee future results. The investment return and principal value of an investment will fluctuate so that an investor's shares, when redeemed, may be worth more or less than their original cost. Current performance of the Fund may be lower or higher than the performance quoted. For most recent month-end and quarter-end performance, visit https://www.gafunds.com/our-funds/#fund_performance or call (800) 915-6566.

Outlook

Following the extraordinarily challenging events of the past eighteen months, market conditions for oil have swung firmly in OPEC's favor. Owing to significant quota cuts since May 2020, the group still has a high level of spare production capacity, which tends to be bearish for prices. However, the anaemic supply response from non-OPEC countries in the COVID recovery has opened the door for OPEC to take control of the market again, as they did for much of the 1998-2008 period.

After a record surplus of oil in inventories in the middle of 2020, which pushed oil prices below $20/bl, OPEC's management of the global oil balance has resulted in much of the excess being worked off. Indeed, the pendulum has swung to a tight market, with the production increases agreed by OPEC at the start of July potentially not sufficient to prevent further tightness over the coming months. Hence, talk in the oil market has moved quickly to issues of inflation and demand destruction, should prices rise further from here. In some areas of the non-OECD, oil prices in local currency terms are already within touching distance of all-time highs. No surprise then that the Indian government, for example, has been vocal in its demands for OPEC to manage the oil price lower from here.

The path for oil demand will vary region by region, affected by price and how rapidly economies open up after COVID. The inflection in gasoline and distillate consumption, plus strength in petrochemical feedstock demand, likely continues for the remainder of the year, while the ongoing weakness in jet fuel recovery implies a longer period before jet demand reaches its previous peak. Overall, the IEA forecast demand in 2021 is 96.4m b/day, up by 5.4m b/day versus 2020. Demand is expected to rise in 2022 to 99.5m b/day, back essentially to the 2019 peak.

OPEC+ will be looking for the rest of this year to manage supply back into the market as the oil demand recovery allows. Tensions emerged at the July OPEC meeting, with a failure to agree on the UAE's demands for greater market share within the group resulting in no agreement around further supply increases in 2021. The likelihood is that OPEC agree on a further 2-2.5m b/day of supply increase for the remainder of the year, which looks needed to offset the recovery in demand, but until agreement is reached, the risk of a short-term 'blow up' is there.

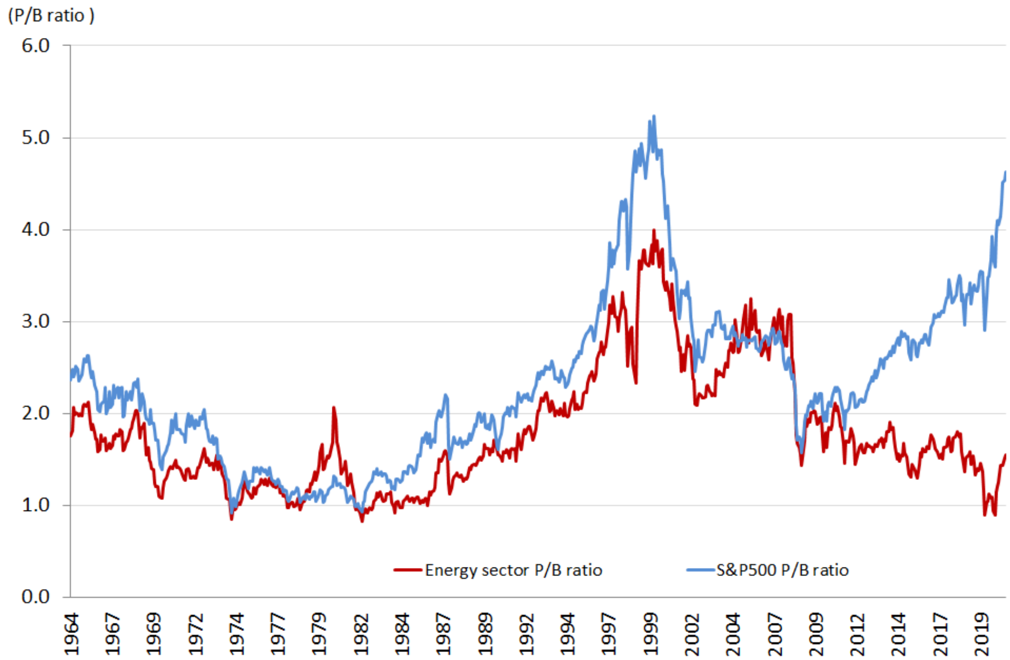
Iran remains another main wildcard within OPEC, with a return of Iranian exports likely at the latter part of 2021 if negotiations around their nuclear program progress as expected. We expect this to be absorbed in OPEC's plans.

We see little threat to OPEC from US shale production for the rest of the year, though 2022 will see some pick up. Average US shale oil production in 2021 will be lower than in 2020. Non-OPEC (ex US shale) will take its share of the OPEC+ quota increases, but beyond that, there will be no major roll-out of large new projects, the cycle having peaked in 2020.

Ultimately, Saudi as OPEC 'kingpin' requires over $70/bl to create fiscal breakeven for themselves. We believe that they continue to work to achieve an average price as close to this level as is sustainable, but mindful that too high a price is not in their interests as it will stimulate non-OPEC supply once again.

The recovery in crude prices so far this year has been accompanied by a strong rally in oil & gas equities, as the market adjusts to the tighter oil balance. The rise in energy equities has lifted the price-to-book ratio for the energy sector at the end of June to around 1.5x, having fallen as low as 0.7x in March 2020. This compares to the S&P 500 trading at over 4.5x. On a relative price-to-book (P/B) basis (versus the S&P500), therefore, the valuation of energy equities still sits close to a 55-year low, at 0.33x.

<u>Price to book ratio of S&P 500 vs energy sector (1965-2021)</u>

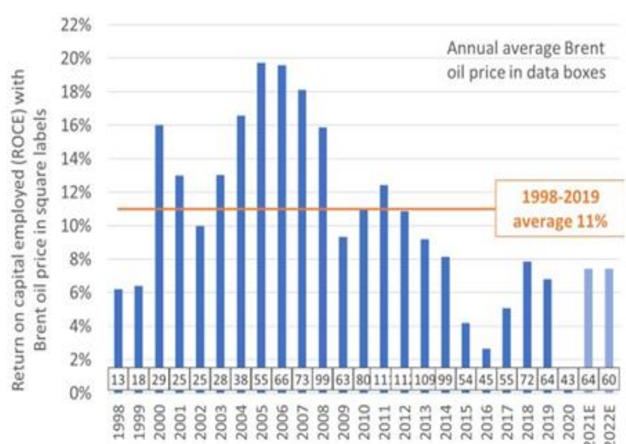


Sources: Bernstein; Bloomberg; Guinness Asset Management

We see the P/B ratio for the energy sector as driven by levels of return on capital employed (ROCE), which remain depressed compared to history.

Having recovered to around 7% in 2019, the collapse in oil prices in 2020 brought ROCE for the Guinness Atkinson Global Energy portfolio down to around 1%, just below the level seen in 2016 when the Brent oil price averaged $45/bl. Our case base assumption sees the Brent oil price recover to average $64/bl/$60/bl in 2021 and 2022. In these circumstances, ROCE would rise to around 8% in both years, implying strong upside on a P/B basis:

ROCE of current Guinness Energy portfolio



ROCE vs P/B multiple for Guinness Energy portfolio

Sources: Bernstein; Bloomberg; Guinness Atkinson Asset Management

Our portfolio is currently tilted to oil over gas. The predominant theme being companies that are well placed to weather volatility in oil markets, but that offer good upside in the oil price environment we describe above. Assuming an average Brent oil price of $60/bl, we estimate the free cashflow yield of our portfolio, after capital expenditure, to be around 10%.

2. Performance – Guinness Atkinson Global Energy Fund

The second quarter of 2021 was positive for global equities. The MSCI World Energy Index (net return) was up by 8.7%, outperforming the MSCI World Index which was up by 7.7%. The Guinness Atkinson Global Energy fund was up by 10.18%, underperforming the energy index by 1.5%.

Inception date 6/30/04	Full year 2019	Full year 2020	YTD 2021	1 year	Last 3 years (annualized)	Last 5 years (annualized)	Last 10years (annualized)	Since Inception (annualized)
Global Energy Fund	**10.40%**	**-34.22%**	**35.45%**	**51.09%**	**-10.51%**	**-2.71%**	**-4.90%**	**3.99%**

MSCI World Energy NR Index	**11.45%**	**-31.46%**	**32.36%**	**40.97%**	**-7.23%**	**-0.55%**	**-1.51%**	**3.76%**
MSCI World Energy Small Cap Index (NR)	**-2.77%**	**-30.49%**	**50.53%**	**95.69%**	**-13.23%**	**-5.82%**	**-9.74%**	**0.71%**
S&P 500 Index	**31.48%**	**18.39%**	**15.24%**	**40.77%**	**18.62%**	**17.62%**	**14.82%**	**10.33%**

Performance as of June 30, 2021 (inception date is June 30, 2004)

Source: Bloomberg; Guinness Atkinson Asset Management
Expense ratio: 2.56% (gross) 1.46% (net)

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The Advisor has contractually agreed to reimburse expenses (excluding Acquired Fund Fees and Expenses, interest, taxes, dividends on short positions and extraordinary expenses) in order to limit the Fund's Total Annual Operating Expenses to 1.45% through June 30, 2025. To the extent that the Advisor absorbs expenses to satisfy this cap, it may recoup a portion or all of such amounts absorbed at any time within three fiscal years after the fiscal year in which such amounts were absorbed, subject to the expense cap in place at the time recoupment is sought, which cannot exceed the expense cap at the time of the waiver. The expense limitation agreement may be terminated by the Board of the Fund at any time without penalty upon 60 days' notice.

4. Portfolio – Guinness Atkinson Global Energy Fund

Sector Breakdown

The following table shows the asset allocation of the Fund at **June 30, 2021**.

Asset allocation as %NAV	Current	*Change*	Last year end	Previous year ends						
	Jun-21		Dec-20	Dec-19	Dec-18	Dec-17	Dec-16	Dec-15	Dec-14	Dec-13
Oil & Gas	**97.6%**	***2.8%***	**94.8%**	**98.7%**	**96.7%**	**98.4%**	**96.7%**	**95.1%**	**93.7%**	**93.6%**
Integrated	56.6%	*0.3%*	56.3%	50.8%	46.4%	42.9%	46.4%	41.5%	37.3%	38.4%
Exploration & Production	24.8%	*2.6%*	22.2%	30.3%	35.8%	36.9%	35.8%	36.5%	36.2%	35.2%
Drilling	0.0%	*0.0%*	0.0%	0.1%	2.2%	1.9%	2.2%	1.5%	3.3%	7.0%
Equipment & Services	4.8%	*0.2%*	4.6%	9.6%	8.6%	9.5%	8.6%	11.4%	13.4%	9.8%
Storage & Transportation	4.3%	*-0.1%*	4.4%	4.0%	0.0%	3.5%	0.0%	0.0%	0.0%	0.0%
Refining & Marketing	7.1%	*-0.2%*	7.3%	3.9%	3.7%	3.7%	3.7%	4.2%	3.5%	3.1%
Solar	1.1%	*-0.7%*	1.8%	1.2%	0.9%	1.4%	0.9%	4.7%	3.7%	2.6%
Coal & Consumable Fuels	0.0%	*0.0%*	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Construction & Engineering	0.0%	*0.0%*	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.2%
Cash	1.3%	*-2.0%*	3.3%	0.1%	2.4%	0.2%	2.4%	0.2%	2.6%	2.6%

Source: Guinness Atkinson Asset Management
Basis: Global Industry Classification Standard (GICS
Holdings are subject to change at any time

Portfolio Holdings

Our integrated and similar stock exposure (about 57%) is comprised of a mix of mid cap, mid/large cap and large cap stocks. Our five large caps are Chevron, BP, ExxonMobil, Royal Dutch Shell and Total. Mid/large and mid-caps are ENI, Equinor, GALP, Repsol and OMV. At June 30, 2021 the median P/E ratio of this group was 10.0x 2021 earnings. We also have two Canadian integrated holdings, Suncor and Imperial Oil. Both companies have significant exposure to oil sands in addition to downstream assets.

Our exploration and production holdings (about 25%) give us exposure most directly to rising oil and natural gas prices. We include in this category non-integrated oil sands companies, as this is the GICS approach. The stock here with oil sands exposure is Canadian Natural Resources. The pure E&P stocks have a bias towards the US (EOG, Pioneer and Devon), with one other name (ConocoPhillips) having a mix of US and international production. One of the key metrics behind a number of the E&P stocks held is low enterprise value / proven reserves.

We have exposure to five (pure) emerging market stocks in the main portfolio, though one is a half-position, and in total represent 16% of the portfolio. Two are classified as integrateds (Gazprom and PetroChina), one as refining (Sinopec) and two as E&P companies (CNOOC and Pharos Energy). Gazprom is the Russian national oil and gas company which produces approximately a quarter of the European Union gas demand and trades on 3.5x 2021 earnings. PetroChina is one of the world's largest integrated oil and gas companies and has significant growth potential and, alongside CNOOC, enjoys advantages as a Chinese national champion.

The portfolio contains one midstream holding, Enbridge, North America's largest pipeline company. With the growth of hydrocarbon demand expected in the US and Canada over the next five years, we believe Enbridge is well placed to execute its pipeline expansion plans.

We have modest exposure to oil service stocks, which comprise around 5% of the portfolio. The stocks we own are mainly diversified internationally (Helix and Schlumberger).

Our independent refining exposure is currently in the US in Valero, the largest of the US refiners. Valero has a reasonably large presence on the US Gulf Coast and is benefiting from the rise in US exports of refined products seen in recent times.

Portfolio at June 30 2021

Guinness Global Energy Fund (30 June 2021)		P/E			EV/EBITDA			Price/Book		
Stock	**% of NAV**	**2020**	**2021E**	**2022E**	**2020**	**2021E**	**2022E**	**2020**	**2021E**	**2022E**
Integrated Oil & Gas										
Exxon Mobil Corp	4.8%	n/a	16.5x	13.8x	16.7x	7.4x	6.7x	1.6x	1.6x	1.6x
Chevron Corp	4.1%	n/a	17.8x	15.3x	13.8x	6.9x	6.5x	1.5x	1.5x	1.5x
Royal Dutch Shell PLC	4.1%	32.2x	9.5x	8.0x	6.7x	4.2x	4.1x	1.0x	0.9x	0.8x
Total SA	3.9%	31.4x	10.1x	9.3x	8.3x	4.8x	4.5x	1.1x	1.1x	1.1x
BP PLC	4.1%	n/a	9.3x	8.4x	11.1x	4.6x	4.4x	1.2x	1.1x	1.1x
Equinor ASA	3.9%	37.9x	9.9x	12.0x	4.6x	2.8x	3.0x	2.0x	1.8x	1.7x
ENI SpA	3.7%	n/a	14.5x	10.7x	5.7x	3.8x	3.4x	0.9x	1.0x	0.9x
Repsol SA	3.8%	49.4x	9.5x	7.9x	6.4x	4.5x	4.1x	0.7x	0.8x	0.7x
Galp Energia SGPS SA	3.0%	n/a	16.8x	12.6x	6.3x	4.5x	4.0x	2.1x	2.2x	2.1x
OMV AG	4.2%	22.5x	8.3x	7.9x	8.7x	5.1x	5.0x	1.2x	1.0x	0.9x
	39.5%									
Integrated / Oil & Gas E&P - Canada										
Suncor Energy Inc	4.2%	n/a	11.0x	9.6x	13.7x	5.0x	4.7x	1.3x	1.2x	1.1x
Canadian Natural Resources Ltd	4.0%	n/a	10.2x	10.2x	12.8x	5.2x	5.2x	1.7x	1.5x	1.4x
Imperial Oil Ltd	4.7%	n/a	11.2x	10.5x	34.6x	5.8x	5.8x	1.3x	1.2x	1.1x
	12.8%									
Integrated Oil & Gas - Emerging market										
PetroChina Co Ltd	4.1%	30.4x	8.1x	9.0x	5.1x	3.9x	4.0x	0.5x	0.5x	0.4x
Gazprom PJSC	4.2%	177.3x	3.5x	3.5x	6.6x	3.4x	3.3x	0.4x	0.2x	0.2x
	8.2%									
Oil & Gas E&P										
ConocoPhillips	4.0%	n/a	16.2x	14.1x	17.6x	5.8x	5.6x	2.2x	1.8x	1.7x
EOG Resources Inc	4.2%	76.1x	12.8x	11.9x	10.4x	5.5x	5.2x	2.4x	2.1x	1.9x
Pioneer Natural Resources Co	3.8%	104.0x	14.0x	9.7x	20.7x	7.4x	5.6x	2.3x	1.7x	1.5x
Devon Energy Corp	4.2%	n/a	12.4x	9.2x	16.2x	5.6x	4.7x	3.5x	2.5x	1.4x
	16.3%									
International E&Ps										
CNOOC Ltd	2.2%	13.4x	5.4x	5.1x	3.8x	2.4x	2.2x	0.7x	0.7x	0.7x
Pharos Energy PLC	0.4%	n/a	n/a	11.8x	2.1x	1.9x	1.2x	n/a	n/a	n/a
	2.5%									
Midstream										
Enbridge Inc	4.3%	20.7x	18.4x	16.2x	12.8x	12.0x	11.0x	1.8x	1.7x	1.8x
	4.3%									
Equipment & Services										
Schlumberger Ltd	3.7%	49.8x	28.6x	19.8x	13.9x	12.5x	10.5x	3.7x	3.3x	3.0x
Helix Energy Solutions Group Inc	1.1%	n/a	n/a	n/a	6.6x	10.3x	8.6x	0.5x	0.5x	0.5x
	4.8%									
Oil & Gas Refining & Marketing										
China Petroleum & Chemical Corp	3.0%	11.2x	6.4x	6.2x	5.6x	3.9x	3.7x	0.5x	0.5x	0.5x
Valero Energy Corp	4.0%	n/a	68.9x	13.2x	42.2x	11.2x	6.5x	1.9x	1.8x	1.7x
	7.1%									
Research Portfolio										
Deltic Energy PLC	0.4%	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
EnQuest PLC	0.6%	n/a	2.1x	1.6x	3.1x	1.8x	1.9x	2.0x	n/a	n/a
JKX Oil & Gas PLC	0.2%	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Reabold Resources PLC	0.2%	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Sunpower Corp	0.9%	n/a	105.1x	49.8x	177.1x	43.4x	31.4x	417.4x	11.2x	9.1x
Maxeon Solar Technologies Ltd	0.2%	n/a	n/a	n/a	n/a	n/a	44.3x	n/a	n/a	n/a
Diversified Energy Company	0.7%	6.3x	10.1x	12.4x	6.5x	5.9x	6.3x	1.1x	1.0x	1.1x
	3.2%									
Cash	**1.3%**									
Portfolio	**100.0%**	**59.5x**	**10.8x**	**9.5x**	**8.9x**	**5.0x**	**4.7x**	**1.2x**	**1.0x**	**0.9x**

The Fund's portfolio may change significantly over a short period of time; no recommendation is made for the purchase or sale of any particular stock.
Forecasts are inherently limited and cannot be relied upon. Holdings are subject to change.

The Fund's investment objectives, risks, charges and expenses must be considered carefully before investing. The statutory and summary prospectuses contain this and other important information and can be obtained by calling 800- 915-6565 or visiting www.gafunds.com. Read and consider it carefully before investing.

The Fund's holdings, industry sector weightings and geographic weightings may change at any time due to ongoing portfolio management. References to specific investments and weightings should not be construed as a recommendation by the Fund or Guinness Atkinson Asset Management, Inc. to buy or sell the securities. Current and future portfolio holdings are subject to risk.

Mutual fund investing involves risk and loss of principal is possible. The Fund invests in foreign securities which will involve greater volatility, political, economic and currency risks and differences in accounting methods. The Fund is non-diversified meaning it concentrates its assets in fewer individual holdings than a diversified fund. Therefore, the Fund is more exposed to individual stock volatility than a diversified fund. The Fund also invests in smaller companies, which involve additional risks such as limited liquidity and greater volatility. The Fund's focus on the energy sector to the exclusion of other sectors exposes the Fund to greater market risk and potential monetary losses than if the Fund's assets were diversified among various sectors. The decline in the prices of energy (oil, gas, electricity) or alternative energy supplies would likely have a negative effect on the fund's holdings.

OPEC+ is an amalgamation of OPEC and 10 other oil-exporting nations such as Russia and Kazakhstan.

MSCI World Energy Index is the energy sector of the MSCI World Index (an unmanaged index composed of more than 1400 stocks listed in the US, Europe, Canada, Australia, New Zealand, and the Far East) and as such can be used as a broad measurement of the performance of energy stocks.

MSCI World Index is a free float-adjusted market capitalization weighted index that is designed to measure the equity market performance of developed markets.

The S&P 500 Index is a broad based unmanaged index of 500 stocks, which is widely recognized as representative of the equity market in general.

One cannot invest directly in an index.

The Henry Hub pipeline is the pricing point for natural gas futures on the New York Mercantile Exchange.

Price to earnings (P/E) ratio (PER) reflects the multiple of earnings at which a stock sells and is calculated by dividing current price of the stock by the company's trailing 12 months' earnings per share

The New York Mercantile Exchange is the world's largest physical commodity futures exchange.

ROCE reflects a company's ability to earn a return on all of the capital it employs. ROCE is calculated by determining what percentage of a company's utilized capital it made in pre-tax profits, before borrowing costs.

Enterprise Value, or EV for short, is a measure of a company's total value, often used as a more comprehensive alternative to equity market capitalization

Standard Deviation (SD) is applied to the annual rate of return of an investment to measure the investment's volatility. Standard deviation is also known as historical volatility and is used by investors as a gauge for the amount of expected volatility.

Debt/EBITDA is a measure of a company's ability to pay off its incurred debt. This ratio gives the investor the approximate amount of time that would be needed to pay off all debt, ignoring the factors of interest, taxes, depreciation and amortization.

Opinions expressed are subject to change, are not guaranteed and should not be considered investment advice.

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